

Patent Claims

- (1) Method for producing UV polarizers whose polarizing effect is based on dichroitic absorption characterized in that in a first step metal ions are embedded in a glass body in a near-surface layer; and in a second step the glass is tempered to have the metal ions reduced to and precipitated in form of crystalline particles; and in a third step an after-tempering takes place in a non-reducing atmosphere to transform the particles produced in the second step into particles of a bigger size; and in a fourth step metal ions are embedded in a way similar to that one in the first step; and in a fifth step the glass is tempered again, with the metal ions embedded in the fourth step precipitating in the glass in a near-surface layer in form of crystalline particles that are smaller in size than those created in the third step; and in a sixth step the glass body is deformed at temperatures near the glass transition temperature so that the particles of different sizes are all transformed into particles of revolution-ellipsoidal shapes with varying semiaxis ratios.
- (2) Method according to claim no. 1 characterized in that the method is copied in the first step through to the third step ~~in accordance with claim no. 1,~~ followed by a step in which the glass is deformed in a way as described in the sixth step ~~in claim no. 1,~~ with the large particles being re-shaped into revolution-ellipsoidal ones, followed by the fourth, the fifth and the sixth step ~~each as described in claim no. 1.~~
- (3) Method according to claim no. 1 characterized in that the method is multi-copied in the first step through to the fifth step ~~each as described in claim no. 1,~~ as long until the particles' size profile shows the specified broad dis-

a tribution, followed by the sixth step ~~as described in~~
a ~~claim no. 1~~

claim no. 1

a (4) Method according to ~~claims nos. 1, 2 and 3~~ characterized
a in that once all the steps as described ~~in the claims nos.~~
a ~~1, 2 or 3~~ are completed, the glass is tempered at a tem-
perature above a specified lower cooling point and the
particles of revolution-ellipsoidal shapes are re-deformed
into their original shapes in a limited specific way.

claim no. 1

a (5) Method according to ~~claims nos. 1, 2 and 3~~ characterized
in that it is silver, gold, copper and/or aluminum ions,
or their mixtures, that are embedded.

(6) Method according to claim no. 1 characterized in that the
reduction process according to the second step as de-
a scribed ~~in claim no. 1~~ takes place in a reducing atmos-
phere.

a (7) Method according to claim no. 1 ~~or claim no. 6~~ character-
ized in that the reduction process takes place in a hydro-
gen gas or in a hydrogen/nitrogen gas atmosphere.

(8) Method according to claim no. 1 characterized in that the
reduction process according to the second step as de-
a scribed ~~in claim no. 1~~ takes place in a non-reducing at-
mosphere with the metal ions being reduced by substances
that are already existent in the glass and have a reducing
effect.

a (9) Method according to claim no. 1 ~~or claim no. 2~~ character-
a ized in that the third step as described ~~in claim no. 1 or~~
a ~~claim no. 2~~ takes place at a temperature above 300°C, but
not exceeding 700°C.

- a (10) Method according to claim no. 1 ~~or claim no. 2 or claim no. 3~~ characterized in that the glass is stretched in such a way that it becomes twice or even 30 times as long as it was before drawing.
- a (11) Method according to claim no. 1 ~~or claim no. 2 or claim no. 3 or claim no. 10~~ characterized in that an only narrow heating zone is used in such continuous deforming process, and after drawing the glass is cooled down fast enough to prevent any re-deformation of the revolution-ellipsoidal particles.
- a (12) Method according to ^{claim no. 1} ~~claims nos. 1 through to 3~~ characterized in that energy is locally applied to very narrow areas in the glass body's surface causing a specific re-deformation of the revolution-ellipsoidal particles.
- a (13) Method according to ^{claim no. 1} ~~claims nos. 1 through to 3, or claim no. 12~~ characterized in that such energy input is made by means of Laser and/or electron beam technology.
- a (14) Method according to ^{claim no. 1} ~~claims nos. 1 through to 3~~ characterized in that the glass surface is masked and thin surface layers are etched away from it.
- a (15) Method according to ^{claim no. 1} ~~claims nos. 1 through to 3, or claim no. 12 or claim no. 13 or claim no. 14~~ characterized in that such local energy input and/ or such masking and etching away is used to produce polarizers of a structured design.